

## ISOLATION AND IDENTIFICATION OF CONTAMINANT FUNGI OF SOME FOOD SUPPLEMENTS IN MOSUL CITY, IRAQ<sup>(\*)</sup>

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### ABSTRACT

Study of isolation and identification of fungi which contaminate some food supplements which available in mosul pharmacies, which were (15) samples, showed that all these samples were contaminated with fungi except orange powder and slimming herbs, which were uncontaminated. *Aspergillusniger*, was more frequent, which isolated with percentage (45.90%), followed by *penicilium* sp. (24.59%), *A.flavus* (17.21%), *phama* sp. (4.91%), *Botrytis cinerea* (4.09%), *Rhizopusstolonifer* (2.45%), and *Cladosporiumherbarum* (0.81%).

**KEYWORD:** *penicilium* sp., *A.flavus*, *phama* sp., *Botrytis cinerea*.

### INTRODUCTION

Food Supplements are extracts composition of natural animals or plants food components and artificial concentrated materials, this food supplements produced as a *formof* solution, tablets, capsules or powders so it's supplements of the food, consist of known food components such as vitamins, minerals, herbs and amino *acids* (Muntwyler, 2002).

This food supplements had been used for differents purposes such as decreasing the cholesterol and risk of cardiovascular diseases (Deny, 2009), also decreasing the weight (Melinda, 2012) and as antioxidant and antitoxins agents (Galvanoetal, 2008).

This food supplements may be contaminate by chemical agents such as lead (Ko, 1998) and pesticides, bacteria and fungi (Cohen, 2009), so the contamination of this food supplements will affect the chemical composition of its crude materials and decrease of its drugs value. (Roy, 2003).

This food supplements had been contaminated by fungi such as mycotoxins producing mold such as *Aspergillus*, *penicillium* and *Fusarium* (Rizzo, 2008), also some fungi and its mycotoxins had been isolated from many food supplements used as powdered herbal drugs belong to the genera *Aspergillus*, *penicillium*, *Helminthosporium*, *Rhizopus*, *Syncephalustrum*, *Alternaria* and *curvularia*, which were contaminated with aflatoxins, citranin and sterigmatocystin (Gautan and Bhaduria, 2009).

Contamination of food supplements which consist of stored herbal drugs by fungi lead to its contamination by mycotoxins which cause diseases for liver, kidneys, muscular and nervous systems, skin, respiratory system, digestive tract and genitals organs (Truchesses and Scott, 2008, Rai and Mehrotra, 2005), so, Romani and others (2000) found that ochratoxins was contaminated of green coffee, also, Vaclavik and others (2013), separated ochratoxin A, ochratoxin B, fumonisin B and mycophenolic acid from 50 commercial products of food supplements which consist of green coffee extract.

So, that there is on any local study about food supplement contamination by fungi, this study suggested which aim to isolation and identification of fungi which contaminate of this food supplements.

## MATERIALS AND METHODS

Samples: studied samples was 15 common food supplements which available in local pharmacies (Table 1).

**Table (1): Food supplements samples.**

Sample No.	Sample type	its uses	package	Weight (gram)	Producing company	Export country
1	Ftuir slim	Slimming	capsules	120	Family dream	China
2	Via ananas	Slimming	capsules	17	les 3 chens	France
3	Del. Dr. Ming	Slimming	capsules	18	natural product international	America
4	Slimming milk tea	Slimming	powder	150	USA united chemical gene biological research institute	America
5	Beesline	Slimming undl activation of body function	powder	50	Natural S.A.R.L Lebanon	Lebanon
6	Green apple (Best share)	Slimming	Tablet	15	Best share	China
7	Etumax	General tonic	capsules	30	Etumax corporation sdn. Bhd	Malaysia
8	Simming herbs	Slimming	capsules	35	Royal diwan	United Arab emirates
9	Natural max	Slimming	capsules	50	H&R global	America

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10	Royalslim	Slimming	capsules	55	Sinaxamanpharmaceuticals sdn Bhd	Malaysia
11	Ribran	Slimming	Tablet	120	Druy City company	Syria
12	Extra slim plus	Slimming	capsules	35	National qualified GMP factory	Korea
13	Apple- lite	Slimming	Tablets	20	Drugs arab company and medicinal plants.	Egypt
14	orange powder	Slimming	powder	150	USA united chemical gene biological research institute	America
15	Green	Slimming	capsules	50	GMP groupminimonics dotency	America

### Isolation of the fungi

Fungi had been isolated from this samples by dilution method as in (Marth, 1979, and Ronldetal, 1995) by weighting (1) gram of powder of each sample and putting in vials (25 ml). contain (9) ml. Sterile and distilled water by shaking well to obtain 1/10 dilution and complete series dilution till to 1/1000, then take (1) ml of the last dilution by sterile syringe and put in to petridish (9ml). then added to the media potato Dextrose agar (PDA) before solidation, the plates were moved circularly, each sample were trip\*licated, plates were incubated at 27C for one week till arise the fungal colony.

### Identification of the is olated fungi

Identification of the fungi which isolated from the food supplements samples on the PDA according to cultural characteristics and microscopic pictures according to certified classification keys (Raper and Fend, 1965, smith 1971, konemanetal 1979, Pitt and Hocking, 1997), the percentage of the isolated fungi were calculated as:

$$\% \text{ of isolation: } \frac{\text{Total of isolated fungus colonies}}{\text{Total of frequency of isolated fungi colonies}}$$

### RESULTS AND DISCUSSION

Results of isolation and identification of contaminant fungiof (15) studied food supplements which were available in Mosul city pharmacies from August 2013 to November 2013, Showed that all the samples were contaminated by fungi except orange powder and slimming herbs (Table, 2) Which were free of contamination so the fungus *Aspergillusniger* (Table 3) were more frequent (45.90%) followed by *penicillium sp.* (24.59%), *A.flavus* (17.21%), *phoma sp.* (4.91%), *Botrytiscinerea* (4.09%) *Rhizopusstolonifer* (2.54%) and *Cladosporiumherbarum* (0.81%), so this results agree with finding of Rizzo and others (2004), who find that *Aspergillus spp.* were the most of isolated fungi from food supplements followed by *penicillium spp.*, also agree with the finding of Gautman and Bhaduria (2009) who

isolated many fungi were used as powdered herbal drugs, who found that *Aspergillus* spp. was the most isolated frequent fungus, followed by *penicillium* spp.

**Table (2): Isolated fungi from food supplementssamples accordingto it, types and sources for the periodfrom august 2013 to November 2013.**

Sample No.	Sample type	Isolated fungi	Frequency
1	Fruit slim	<i>Rhizopusstolonifer</i>	1
2	Via Ananas	<i>Botrytiscinerea</i>	5
3	Del Dr. Ming	<i>R. stolonifer</i>	1
4	Slimming milk tea	<i>cladosporiumherbarum</i>	1
		<i>Phoma sp.</i>	1
		<i>Aspergillusniger</i>	5
5	Bees line	<i>A. niger</i>	5
		<i>R. stolonifer</i>	1
6	Green apple (Best share)	<i>A. niger</i>	3
		<i>phomasp.</i>	1
7	Etumax	<i>A. niger</i>	1
		<i>R. stolonifer</i>	1
8	Slimming herbs	_____	_____
9	Natural max	<i>A. niger</i>	2
		<i>penicilliumsp.</i>	30
10	Royal slim	<i>A. niger</i>	5
11	Ribran	<i>A. niger</i>	1
		<i>phomasp.</i>	1
12	Extra slim plus	<i>A. flavus</i>	21
		<i>A. niger</i>	26
13	Apple - lite	<i>A. niger.</i>	1
		<i>Phoma sp.</i>	1
14	Orange powder	_____	_____
15	Green apple	<i>A. niger</i>	7
		<i>phoma Sp.</i>	1

(\*) Each value represent three plates, (-)No fungal growth.

**Table (3): Isolated fungi from food supplements samples according to itstotal frequency and its percentage of isolation for the period August 2013 to November 2013.**

Sample No.	Isolated fungi	Total Frequency <sup>(*)</sup>	Per centage of isolation <sup>(**)</sup>
1	<i>A spergilusflavus</i>	21	17.21
2	<i>A. niger</i>	56	45.90
3	<i>Botrytis cinerea</i>	5	4.09
4	<i>Cladosporiumherbarum</i>	1	0.81
5	<i>Penicillium sp.</i>	30	24.59
6	<i>phoma sp.</i>	6	4.91
7	<i>Rhizopusstolonifer</i>	3	2.45

(\*) Total frequency of the fungus is total frequency of itsisolated colonies from all the samples.

$$(**) \text{ percentage of isolation: } \frac{\text{Total coloniel of the isolated fungus}}{\text{Total of frequency of the colonces of the isolated fungi}}$$

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